

Remarks

Reconsideration and allowance of this application are respectfully requested in view of the remarks below.

Applicant gratefully acknowledges entry of the amendment filed on January 13, 2006, and withdrawal of the prior objections to the drawings and withdrawal of the finality of the previous office action.

In the current Office Action, claims 1-6 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 3,105,516 to Werra et al. ("Werra Patent") in view of U.S. Patent No. 5,427,352 to Brehm ("Brehm Patent"). This rejection is respectfully traversed.

Briefly summarized, applicant's invention is directed to a ball check valve comprising a housing having walls defining a fluid inlet, a fluid outlet and a chamber communicating with the inlet and with the outlet. The ball check valve includes a spherical hollow ball in the chamber having a diametric cross-sectional area larger than the area of the inlet. A plurality of shock absorbing members is contained within the spherical hollow ball. The ball is movable between a first, flow impeding position adjacent the inlet along a guide part to a second position spaced from the inlet and diverged from the fluid passageway to allow fluid to pass through the valve.

Applicant recognized that the use of a spherical hollow ball filled with a plurality of spherical shock absorbing members reduces the physical shock and hydrodynamic forces from the flow of fluid subjected to the ball during closing or high velocity flow in a ball check valve. The noise caused by hydraulic shock waves and damage to the interior of the valve using a sold

spherical ball in a ball check valve are also reduced by using a spherical hollow ball filled with a plurality of spherical shock absorbing members in accordance with the principles of the present invention.

There is no suggestion or motivation for combining the Werra Patent with the Brehm Patent in the Office Action. “Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” M.P.E.P. §2143.01. The Office Action merely points to the purported disclosure of certain individual elements in each reference and then, without more, concludes that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the shock absorbing members that are in the valve of Brehm into the hollow ball of Werra et al., in order to dampen the movement of the ball.” This is insufficient. See In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a prima facie case of obviousness was held to be improper.).

The Werra Patent is directed to a ball check valve using a hollow ball. As the Office Action correctly points out, the Werra Patent does not disclose a plurality of spherical shock absorbing members contained within a spherical hollow ball. However, the Werra Patent also discloses its own solution to the problem addressed by applicant’s invention. Specifically, the Werra Patent states:

[T]he “moving liquid in the spaces 24 and 25 creates a cushion which limits the upward movement of the ball and prevents it, with normal flow velocity, from hitting the cap 15 and bobbling back and forth against it so as to create noise and objectionable turbulences. (Col. 2, lines 65-70)

Therefore, the Werra Patent fails to recognize the need for an alternative ball design to, for example, reduce noise, physical shock forces or damage to the interior of the check valve.

In contrast, the Brehm Patent is directed to a completely different type of valve, specifically an electromagnetic valve. In particular, the electromagnetic valve that is the subject of the Brehm Patent is used as a pressurized medium regulating valve for an automatic transmission of a motor vehicle. The electromagnetic valve disclosed in the Brehm Patent has a magnetic housing, an electromagnetic coil received in the magnetic housing and a plurality of movable parts including a moveable magnetic armature and a movable valve stem device for valve opening and closing. Abst. To provide a damping of the motion of the movable parts, at least one of the moveable parts is provided with a hollow compartment and a damping mass at least partially fills the hollow compartment. Brehm Patent, Col. 5, lines 18-26.

However, the electromagnetic valve of the Brehm Patent is not controlled or operated by fluid and, thus, does not discuss or consider the physical shock and hydrodynamic forces from the flow of fluid subjected to a ball during closing or high velocity flow in a ball check valve. Instead, the electromagnetic valve of the Brehm Patent is controlled by the flow of current and focuses on achieving a “nearly constant valve characteristic curve and uniform dynamics” to draw the armature disk toward the coil against the action of the coil spring. The operation of the electromagnetic valve of the Brehm Patent is, therefore, completely different than the operation of the ball check valve disclosed in the Werra Patent and in the present invention. Therefore, there is no motivation or suggestion to combine the Werra Patent with the Brehm Patent and any combination of individual features of the same is based solely hindsight impermissibly using Applicant’s invention as a guide.

Based on the foregoing remarks, applicants respectfully request reconsideration and withdrawal of the §103 rejection.

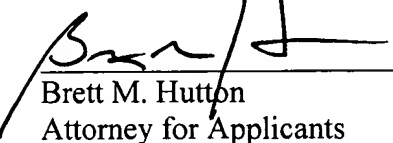
Conclusion

For all of the above reasons, it is respectfully submitted that all grounds objection and rejecting the above-referenced application have been overcome. It is believed that the application is in condition for allowance, and such action is respectfully requested.

If a telephone conference would be of assistance in advancing the prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

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Respectfully submitted,


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